

IN THE SPECIFICATION

Please amend the paragraphs added to page 1, line 28 (added in the Preliminary Amendment) as follows:

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Brief Description of the ~~Sole Figure~~ Figures

Fig. 1 ~~The sole figure~~ shows results of the correlation between the forming rate ( $ds/dt$  in  $s^{-1}$ ), plotted on the horizontal axis, and yield stress  $\sigma_v$  in MPa, plotted on the vertical axis, and the prevailing pressure  $P_o$  in MPa on all sides.

B1 Fig. 2 is a schematic representation of the forming surface of a wall-ironing tool in accordance with a first embodiment of the invention.

Fig. 3 is a schematic representation of a forming surface in accordance with a second embodiment of the invention.

Fig. 4 is a schematic representation of a cross section through a wall-ironing tool in accordance with the invention.

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Please revise the paragraph bridging pages 1 and 2 as follows:

B2 The invention is based on making use of the observed fact that many plastics materials exhibit a higher fracture limit during forming as the pressure on all sides increases. ~~The appended figure~~ Fig. 1 shows results of the correlation between the forming rate ( $ds/dt$  in  $s^{-1}$ ), plotted on the horizontal axis, and the yield stress  $\sigma_v$  in MPa, plotted on the vertical axis, and the prevailing pressure  $P_o$  in MPa on all sides. This figure works on the basis of a polyethyleneterephthalate (PET), with lines illustrating results of model studies and crosses indicating the results of experiments. It can be clearly seen from this figure that the yield stress is considerably higher as the pressure on all sides rises. The object of the invention is therefore to produce a high pressure on all sides at the location where the coated metal sheet is being wall-ironed using a large entry angle, without it being necessary to apply a very high pressure to the entire wall-ironing installation.

Please revise the paragraphs starting with the first full paragraph of page 2 to the last line of page 2 to read as follows:

b3 The invention therefore consists in the fact that the entry angle varies over the length of the forming surface, in the direction of movement of the product (shown by an arrow in Figs. 2-4) past the forming surface. Fig. 2 shows a product 1 being formed by contact with a forming surface of a wall ironing tool. For this forming surface, this the entry angle  $\alpha_1$  is being smaller in a starting zone 2 of the forming surface than the entry angle  $\alpha_2$  in the subsequent zone 3 thereof. The result of this measure is that, in the starting zone 2 with the small entry angle  $\alpha_1$ , a high pressure on all sides is built up in the material, and this pressure is maintained during the subsequent forming in the subsequent zone 3 with a the larger entry angle  $\alpha_2$ . In the zone where the actual forming takes place, a high pressure prevails on all sides, yet nevertheless a relatively low spreading force is exerted on the forming surface (for example a wall-ironing ring).

The high pressure which is generated on all sides in the plastic layer may relax slightly towards the chamber after the wall-ironing tool has been passed, towards the end of the zone 3 with the larger entry angle  $\alpha_2$ . This may mean that the fracture stress of the plastic material is reduced again at that location, causing it to fracture and be stripped off by the wall-ironing tool. For this reason, it has proven advantageous for the forming surface in an end zone 5 to again be at a smaller entry angle  $\alpha_3$  than in the intermediate zone 3.

An improvement is also achieved if the forming surface, following the zone 3 with the largest entry angle  $\alpha_2$ , comprises a so-called land zone 4, with an entry angle of 0. The length of this land zone 4 may be between 0.3 and 1.5 mm.

In one possible application of the invention, the entry angle may have a fixed value in each of the ~~said~~ zones 2, 3, 4 and 5 as shown in Fig. 2. However, under certain circumstances it may be preferable for the entry angle to change smoothly over the length of the forming surface as shown in Fig. 3 over zones 6, 7, 8 and 9 which correspond to zones 2, 3, 4 and 5 of Fig. 2. This prevents sudden changes in stress in the material to be

wall ironed, so that, under certain circumstances, the wall ironing can proceed more successively.

In the preferred embodiment of this smooth change, the transitions between the successive zones, and/or the zones themselves, run in the form of an arc of a circle as shown in Fig. 3. Good results are obtained if the radius "r" of this arc is between 0.1 and 10 mm long.

Particularly if the novel process is used for the wall ironing of a product which ultimately acquires the shape of a can, it is advantageous for the wall-ironing tool to comprise a plurality of wall-ironing rings 10, 11 as shown in Fig. 4, each ring 10, 11 having a forming surface of the type described above. In particular, it has proven advantageous for between 60 and 90% of the total wall thinning to be produced by the corresponding forming surface in the zone which runs at the largest entry angle, the so-called main zone. A further improvement is obtained if between 10 and 30% of the total wall thinning is produced by the corresponding forming surface in the starting zone. Furthermore, it is advantageous, if an end zone is also being used, for less than 30% of the total wall thinning to be produced by the corresponding forming surface in this end zone.

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B3  
Concl

Please insert the following new paragraphs after page 4, line 31:

Fig. 2 is a schematic representation of the forming surface of a wall-ironing ring based of the invention. Number 1 denotes the product. The arrow shows the direction of movement of the product and  $\alpha_1$ ,  $\alpha_2$ , and  $\alpha_3$  denote entry angles. The term entry angle is defined as the angle of the forming surface with respect to the direction of movement of the product. Number 2 denotes the starting zone of the forming surface. The starting zone, has a smaller entry angle than in the subsequent intermediate or main zone denoted by number 3. In accordance with this description  $\alpha_1$  is smaller than  $\alpha_2$  in the figure.

Number 4 denotes the land zone, which follows the zone with the largest entry angle. The land zone has an entry angle of  $0^\circ$ . Number 5 denotes the end zone, and has a smaller entry angle than in the intermediate zone 3. The entry angle, herein, has a fixed value in each of the zones. Number 14 denotes the transverse dimension of the forming surface (transverse with respect to its longitudinal direction).

Fig. 3 is a schematic representation of the forming surface of a wall-ironing tool which has a starting zone 6, an intermediate or main zone 7, a land zone 8 and an end zone 9 where the entry angles change smoothly over the length of the forming surface.

Page 4, please amend the paragraph starting at line 32 to read as follows:

B5 A particular preferred embodiment of a wall-ironing ring according to the invention is also that this wall-ironing ring is under a radial prestress on its outer circumferential surface, due to a strip or wire which has been wound around it under stress. Fig. 4 is a schematic representation of a cross section through a wall ironing tool comprising two wall-ironing rings 10, 11 of the type described above. Each wall ironing ring 10, 11 being under a radial prestress on its outer circumferential surface, due to a strip or wire 12, 13 wound around it under stress. The arrow in Fig. 4 shows the direction of movement of the product through the tool.